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DRAFT

TABLE 2

Cupola Scrubber Stack
Particulate and Sulfur Dioxide Emission Results

Permit
Limit
LB/HR

	Run No.				
	1	2	3	Avg.	
Fuel	Normal	Normal	Alternate	-	
Test Date	9/18/97	9/18/97	9/23/97	-	
Test Time Start	0636	0851	0945	-	
Test Time Stop	0754	1012	1105	-	
Carbon Dioxide Emission Concentration (%)	11.5	11.9	12.3	11.9	
Oxygen Emission Concentration (%)	8.9	8.5	8.0	8.5	
Gas Moisture Content (%)	9.7	9.4	8.3	9.1	
Gas Temperature (°F)	140	140	137	139	
Gas Velocity (fpm)	3,958	3,917	3,758	3,878	
Stack Gas Flow Rate (acfm)	77,711	76,913	73,795	76,140	
Stack Gas Flow Rate (dscfm)	63,443	61,769	60,094	61,768	
Particulate Emission Concentration (gr/acf)	0.015	0.014	0.012	0.014	
Particulate Emission Concentration (gr/scf, wet)	0.017	0.016	0.013	0.015	
Particulate Emission Concentration (gr/scf, dry)	0.019	0.018	0.014	0.017	
PM-10 26.45	Particulate Emission Rate (lb/hr)	10.18	9.49	7.44	9.04
13.00	Sulfur Dioxide Emission Concentration (ppbv)	183	169	178	177
	Sulfur Dioxide Emission Rate (lb/hr)	0.12	0.10	0.11	0.11

Stack Test Results for Cupola Scrubber
Stack. pg. 12, Question 14.

TABLE 3

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Cupola Scrubber Stack
Metals Emission Results

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Permit
Limit
-G/HR

	Run No.			
	1	2	3	Avg.
Fuel	Alternate	Normal	Normal	-
Test Date	9/18/97	9/22/97	9/23/97	-
Test Time Start	1114	1000	0715	-
Test Time Stop	1314	1142	0854	-
Carbon Dioxide Emission Concentration (%)	13.21	10.87	10.86	11.65
Oxygen Emission Concentration (%)	7.21	9.40	9.33	8.65
Gas Moisture Content (%)	12.1	8.8	7.8	9.6
Gas Temperature (°F)	145	127	131	134
Gas Velocity (fpm)	3,897	4,155	4,003	4,018
Stack Gas Flow Rate (acfm)	76,510	81,577	78,593	78,893
Stack Gas Flow Rate (dscfm)	58,937	67,564	65,091	63,864
Cadmium Emission Concentration (gr/dscf)	1.6E-05	2.0E-05	2.1E-05	1.9E-05
4E-1 Cadmium Emission Rate (lb/hr)	8.2E-03	1.2E-02	1.2E-02	1.1E-02
Chromium Emission Concentration (gr/dscf)	2.5E-06	2.8E-06	2.5E-06	2.6E-06
3E-3 Chromium Emission Rate (lb/hr)	1.3E-03	1.6E-03	1.4E-03	1.4E-03
Lead Emission Concentration (gr/dscf)	7.1E-04	5.5E-04	7.3E-04	6.6E-04
2.80 Lead Emission Rate (lb/hr)	0.36	0.32	0.41	0.36
Mercury Emission Concentration (gr/dscf)	1.2E-05	2.0E-05	9.9E-06	1.4E-05
2E-1 Mercury Emission Rate (lb/hr)	5.9E-03	1.2E-02	5.5E-03	7.6E-03

TABLE 4

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Cupola Scrubber Stack
NOx, CO, and VOC Emission Results

Permit
Limit
LB/HR

	Run No.			
	1	2	3	Avg.
Fuel	Normal	Normal	Alternate	
Test Date	9/18/97	9/18/97	9/18/97	-
Test Time Start	6:36	8:51	11:14	-
Test Time Stop	7:54	10:12	13:14	-
Oxygen Concentration (% by volume, dry)	8.91	8.53	7.21	8.21
Carbon Dioxide Concentration (% by volume, dry)	11.53	11.88	13.21	12.21
Moisture Content (%)	9.7	9.4	12.1	10.4
Stack Gas Flow Rate (dscfm)	63,443	61,769	58,937	61,383
NOx Emission Concentration (ppmv dry)	49	55	53	52
NOx Emission Rate (lb/hr)	22.4	24.1	22.6	23.0
43.00				
CO Emission Concentration at Analyzer (ppmv dry)	56	160	120	112
CO Emission Concentration Corrected for CO2 (ppmv dry)	50	141	104	98
CO Emission Rate (lb/hr)	13.7	37.9	26.7	26.1
326.70				
VOC Emission Concentration, as Propane (ppmv wet)	0.7	1.5	1.3	1.2
VOC Emission Concentration, as Propane (ppmv dry)	0.7	1.7	1.5	1.3
VOC Emission Concentration, as Methane (ppmv dry)	2.2	5.0	4.6	3.9
VOC Emission Rate, as Methane (lb/hr)	0.35	0.77	0.68	0.60
18.66				
Note: 1) CO concentration corrected for CO2 = (CO at analyzer) [(100 - %CO2)/100] 2) VOC concentration, ppmv as methane = (VOC ppmv as propane) (3)				